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10/773,411	02/09/2004	Takeshi Maeda	ASAM.0109	6610

7590 05/16/2007  
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EXAMINER
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BIBBINS, LATANYA

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2627

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PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

## Office Action Summary

Application No.

10/773,411

Applicant(s)

MAEDA, TAKESHI

Examiner

LaTanya Bibbins

Art Unit

2627

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☐ Responsive to communication(s) filed on 15 February 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-9 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-7 is/are rejected.
- 7) ☐ Claim(s) 8 and 9 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 09 February 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_.

### DETAILED ACTION

1. In the remarks filed on February 15, 2007, Applicant amended claims 1, 4-7, and 9 and submitted arguments for allowability of pending claims 1-9.

### *Response to Arguments*

2. Applicant's arguments with respect to claims 1-7 have been considered but are moot in view of the new grounds of rejection.

### *Claim Rejections - 35 USC § 112*

3. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

4. **Claims 1 and 6 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.**

Regarding claims 1 and 6, while the specification discloses the recording or reading out information recorded in said marks formed on said first and second grooves, the specification fails to describe the recording or reading out information recorded in said marks formed within said first and second grooves is not described in the specification. Hence, one of ordinary skill in the art of dynamic information storage

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and retrieval is not enabled to make and use the claimed invention without undue experimentation. In the interest of compact prosecution, the examiner will interpret claims 1 and 6 as recording or reading out information recorded in said marks formed on said first and second grooves as disclosed in the specification.

***Claim Rejections - 35 USC § 103***

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. **Claims 1, 3, 5, and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sugiyama et al. (US Patent Number 5,553,051).**

Regarding claim 1, Sugiyama teaches an information recording and playback method for a recording medium including a substrate forming a first groove having a depth and a second groove adjacent to said first groove and having a depth different from the depth of said first groove (column 10 lines 4-6 and Figure 5A elements 24, 25, and 29); and a recording layer formed on said substrate to record information marks (column 9 lines 60 and 61 and Figure 5A element 30), comprising the steps of: irradiating a light to said recording medium (column 9 lines 63 and 64) "having following relations, in optical characteristics of said marks in relation to said first and second grooves, where a relative amplitude of reflectivity of said recorded mark (a reference reflectivity is a reflectivity of non-recorded part) is  $r$  and optical phase differences of said

marks formed on said first and second grooves are  $\Phi 1$  and  $\Phi 2$ , respectively, an expression of  $2N\pi = \Phi 1 + \Phi 2$  (where  $N$  is an integer) satisfies, and said  $r$  further satisfies  $1 - 2 \cdot r \cdot \cos(\Phi 1) + r^2 \cdot \cos(2 \cdot \Phi 1) = 0$  or  $1 + 2 \cdot r \cdot \cos(\Phi 1) + r^2 \cdot \cos(2 \cdot \Phi 1) = 0$ " (the aforementioned "relations in optical characteristics" is interpreted as an orthogonal relationship between the first and second grooves; see column 13 lines 29 and 30 where the depth of the shallow and deep grooves are  $\lambda/8n$  and  $3\lambda/8n$  respectively the difference of which is  $\frac{1}{4}\lambda/n$  creating an orthogonal relationship between the first and second grooves) While the background section of Sugiyama discloses recording or reading out information recorded in said marks formed on said first and second grooves (column 2 lines 25-37 and Figure 3B).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate recording or reading out information recorded in said marks formed on said first and second grooves as disclosed in the background section of Sugiyama with the teachings of Sugiyama. One of ordinary skill in the art at the time the invention was made would have been motivated to combine the teachings in order to increase the recording density on the disk.

**Regarding claim 3**, Sugiyama teaches an information recording and playback method as defined in claim 1, wherein said recording or said playback is a recording or playback of multi-value information (see column 10 lines 22 and 23 where the "multi-value information" is the user data).

**Regarding claim 5**, Sugiyama teaches an information recording and playback method as defined in claim 3, wherein an orthogonality satisfies both between adjacent

marks in a radial direction and between adjacent marks in a track direction (see Figure 15B).

**Claim 6** is drawn to the information recording medium corresponding to the method of using same as claimed in claim 1. Therefore the information recording medium claim 6 corresponds to method claim 1, and is rejected for the same reasons of anticipation as used above.

**7. Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Sugiyama et al. (US Patent Number 5,553,051) as applied to claim 1 above, and further in view of Isshiki et al. (US PGPub Number 2003/0218955 A1).**

Regarding claim 2, Sugiyama teaches an information recording and playback method including all of the limitations of claim 1 but fails to teach that a plurality of said marks exist inside an optical spot of the light irradiated to said recording medium. Isshiki, however, teaches wherein a plurality of said marks exist inside an optical spot of the light irradiated to said recording medium (paragraph [0006]).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the technique of narrowing the track pitch taught by Isshiki into the information recording and playback method of Sugiyama. One of ordinary skill in the art at the time the invention was made would have been motivated to combine the teachings in order to increase the recording density of the optical disc (see Isshiki paragraph [0004]).

**8. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Sugiyama et al. (US Patent Number 5,553,051) as applied to claim 3 above, and further in view of Van Kesteren (WO 03/034412 A2).**

Regarding claim 4, Sugiyama discloses an information recording and playback method including all of the limitations of claim 3 but fails to teach that an area changes for each of said marks. Van Kesteren, however, teaches an information recording and playback method wherein an area changes for each of said marks (see column 4 lines 16 and 17).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings of Sugiyama and Van Kesteren. One of ordinary skill in the art at the time the invention was made would have been motivated to combine the teachings in order to reduce the cross-talk of the device (see Van Kesteren column 1 line 29 and column 2 lines 1-3).

**9. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Isshiki et al. (US PGPub Number 2003/0218955 A1) in view of Sugiyama et al. (US Patent Number 5,553,051).**

Regarding claim 7, Isshiki discloses an information playback method for reading out information by irradiating an optical spot on an information recording medium having a plurality of tracks, said method comprising the steps of: irradiating said optical spot simultaneously on a first track and a second track adjacent to said first track, among said plurality of tracks (see paragraphs [0006] and [0007] and Figure 2A); and

maintaining an orthogonal relation with a depth of a recorded mark recorded on said first track and a depth of a recorded mark recorded on said second track, when simultaneously converting both the recorded marks to electric signals thereby direct adding the signals to read out information therefrom (see paragraph [0012], specifically the discussion of the depth of each pit and the phase of reflected light). Isshiki fails to disclose the depth of the recorded mark recorded on said first track is different from the depth of the recorded mark recorded on said second track. Sugiyama, however, discloses the depth of the recorded mark recorded on said first track is different from the depth of the recorded mark recorded on said second track (see column 2 lines 39-51 and Figure 3C).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the depth of the recorded mark recorded on said first track is different from the depth of the recorded mark recorded on said second track, as taught by Sugiyama, into the information playback method of Isshiki. One of ordinary skill in the art at the time the invention was made would have been motivated to combine the teachings in order to control the distribution of the diffracted light (Sugiyama column 2 lines 42-44).

#### ***Allowable Subject Matter***

**10.** Claims 8 and 9 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.



**Regarding claims 8 and 9**, none of the references of record, alone or in combination suggest or fairly teach an information playback method for reading out information including all of the limitations of claim 7 wherein when a readout signal from said first track is S1 and a readout signal from said second track is S2, frequencies of carrier waves of said S1 and said S2 are equal frequency but both phases are deviated by 90 degrees from each other, **information bits "1" and "0" of said S1 are deviated by 180 degrees in phases, and information bits "1" and "0" of said S2 are deviated by 180 degrees in phases.**

### ***Conclusion***

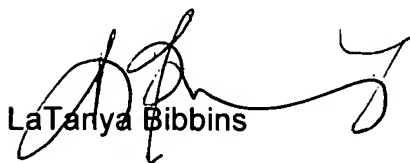
**11.** Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

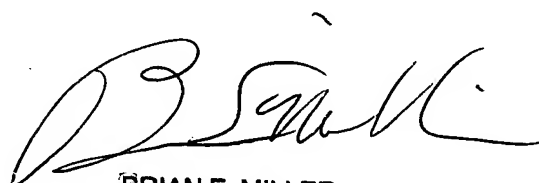
Any inquiry concerning this communication or earlier communications from the examiner should be directed to LaTanya Bibbins whose telephone number is (571) 270-1125. The examiner can normally be reached on Monday through Friday 7:30 am - 5:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wayne Young can be reached on 571 272-7582. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



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